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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/461,771	12/15/1999	KENICHI KOMIYA	016907/1016	4246

7590 05/16/2003

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EXAMINER
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PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/461,771

Applicant(s)

KOMIYA ET AL.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Objections***

2. **Claim 10** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form. The limitation recited by claim 10 is an exact replicate of the limitation recited in the parent claim 6 starting at line 24.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 8, 10, 15, 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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- Each of the claims 8, 10, 15, 17 recites the following limitation “said malfunction sensing means has sensed that a malfunction has occurred in the optical path deflection means” (emphasis added), which appears to be misleading in that such recitation implicates that the malfunction of the optical path deflection means is being directly sensed and acknowledged by the malfunction sensing means. Such limitation is not supported by the specification, which teaches that the positions of the passing light beams are sensed by the light beam sensing unit (38), the undetected light beam would be attributed to the malfunction of either the corresponding laser oscillator or the corresponding galvanomirror, but the direct knowledge of the malfunction of the galvanomirror was never acquired.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3, 5-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3:

- The following limitation “control means for controlling said apparatus comprehensively” (emphasis added), is so vague that it is impossible to ascertain the nature of the claimed limitation.

Claim 5:

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- The following limitation “so that they may scan the surface of said image retaining member” at lines 20-22, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.

Claim 6:

- Similarly, the following limitation “so that they may scan the surface of said image retaining member” at lines 6-8, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.
- “the amount of deflection” at line 9, lacks antecedent basis.

Claim 8:

- It is unclear whether “control means” at line 2 is the same one recited within the parent claim 6.

Claim 10:

- It is unclear whether “control means” at line 9 is the same one recited within the parent claim 6.

Claim 11:

- It is unclear whether the following limitations “light beam position sensing means” (line 3) and “control means” (line 10) are the same ones recited within the parent claim 6.
- The following limitation “so that they may scan the surface of said image retaining member” at lines 4-5, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.

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Claim 12:

- The following limitation “so that they may scan the surface of said image retaining member” at lines 13-14, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.
- “*the* amount of deflection” and “*said* calculation means” lack antecedent basis.

Claim 13:

- The following limitation “so that they may scan the surface of said image retaining member” at lines 13-14, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.
- “*the* amount of deflection” at line 16 lacks antecedent basis.

Claim 15:

- It is unclear whether “control means” at line 2 is the same one recited within the parent claim 13.

Claim 16:

- It is unclear whether “control means” at line 2 is the same one recited within the parent claim 13.
- “*said* converted data” at line 10 lacks antecedent basis, and it is not clear where it does come from.

Claim 17:

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- It is unclear whether “control means” at line 10 is the same one recited within the parent claim 13.

Claim 18:

- The following limitation “so that they may scan the surface of said image retaining member” at lines 4-5, is negatively recited, and implicates that the light beams could be allowed to not scan the surface of said image retaining member.
- It is unclear whether the following limitations “light beam position sensing means” (line 3) and “control means” (line 17) are the same ones recited within the parent claim 6.

Claim 19:

- “*said* light beam generation section” at line 6 lacks antecedent basis.
- The following limitation “so that the luminous energy of said light beam may have a specific value” at lines 7-8, is negatively recited, and implicates that the luminous energy of said light beam could be allowed to not having the specific value.
- It is unclear whether the following limitations “a measuring device” (line 10) and “light beam luminous energy sensing section” (line 14) are the same devices.
- The following limitation “so that said sensing result may coincide with a specific value” at lines 18-19, is negatively recited, and implicates that the sensing result could be allowed to not coincide with the specific value.
- “a specific value” at line 19 should read –*said* specific value–.

Claim 20:

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- "the control panel at line 3 lacks antecedent basis.

Claims 7, 9, 14 are dependent from claims 6 and 13 above, and are therefore indefinite.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Acknowledged Prior Art (hereinafter AAPA) in view of Katoh et al. (U.S. 5,970,184).

AAPA discloses a conventional light beam scanning apparatus comprising all the basic limitations, which include a light beam generating means, a scanning means for scanning a scan surface with the light beam generated by the light beam generating means, a light sensing means for sensing the light beam and outputting a light sense signal corresponding to the luminous energy of the light beam, a light beam luminous energy sensing means, which senses the luminous energy of the light beam on the basis of the light sense signal, and which includes current/voltage conversion means and integration means, a light beam luminous energy control means for controlling the



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luminous energy of the light beam generating means on the basis of the sensing result of the light beam luminous energy sensing means so that the luminous energy of the light beam scanning said scan surface has a specific value.

However, AAPA fails to teach the light beam luminous energy sensing means including an adjusting means, which consists of a variable resistor.

However, Katoh et al. discloses a laser beam generation control system including an automatic power control circuit for keeping the light quantity level of the laser beam constant, the circuit including a current/voltage conversion means (using the voltage resistor  $R_0$ , Fig. 14) for converting the current outputted from the light sensing means (photodiode, Fig. 14) into a voltage, an amplifier (operational amplifier A1) for amplifying the output of the photodiode, and an integration means (built around operational amplifier A2) for integrating the output voltage signal from the variable resistor ( $VR_0$ ) acting as the adjusting means for varying the integration constant of the integration means.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the variable resistor as taught by Katoh in the device of AAPA. The motivation for doing so would have been to provide the integration circuit with a regulating factor to adapt to the sensed intensity level of the light beam.

AAPA further discloses features pertinent to a light beam scanning apparatus such as photosensitive drum, developing unit, and further teaches the inclusion of more

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than one unit of the light beam generating means whose light beams simultaneously scan the surface of the photosensitive drum.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Katoh et al., as applied to claims 1-2 above, and further in view of Horihata et al. (U.S. 4,713,672).

AAPA, in view of Katoh et al., discloses all the basic limitations of the claimed invention except for the signal amplification factor setting section.

However, Horihata et al. discloses a laser beam printer wherein the quantity of light of the laser beam is fed back to maintain the light quantity at a constant value, the feedback control circuit including a photodiode as a light quantity detecting means (4), an amplifying means (5) constituted with amplifiers IC1 and IC2 for amplifying the monitoring output of the photodiode, the amplifiers being provided with respective variable resistors VR1 and VR2 for adjusting the gain of the amplifiers, and an integrator IC5.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide an amplification gain adjustment as taught by Horihata et al. in the modified device of AAPA. The motivation for doing so would have been to enable the feedback control circuit to correctly detect the monitoring current outputted from the photodiode.

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10. Claims 5-6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kato et al., as applied to claims 1-2 above, and further in view of Rossi et al. (U.S. 5,799,029).

AAPA, in view of Kato et al., discloses all the basic limitations of the claimed invention except for the malfunction sensing means along with the control means, which stops the operation of the faulty light beam generating means while continues to form an image by the operation of the remaining good light beam generating means.

However, Rossi et al. discloses a laser beam printing system having a multiple laser array, wherein if one or more emitters of the laser array should fail, the power of the remaining good emitters is increased to provide a stable light for the formation of the image to be continued (col. 3, lines 3-9).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of AAPA, as modified by Kato et al., with the aforementioned teaching of Rossi et al. The motivation for doing so would have been to prevent the operation of the laser printing system from being affected by the failure of one or more emitters.

11. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Kato et al. and Rossi et al., as applied to claims 1, 4, 6 above, and further in view of Kinoshita (JP 8-174902).

AAPA in view of Kato et al. and Rossi et al., discloses all the basic limitations of the claimed invention except for the guide display means.

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However, Kinoshita discloses an image recording apparatus having a plurality light emitting elements, wherein a failure of one of the light emitting elements, as it goes undetected by the BD photodetecting part, would be displayed as a notification to a user.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the failure notification display as taught by Kinoshita in the modified device of AAPA. The motivation for doing so would have been to alert the user to provide proper maintenance of the printing system.

12. Claims 12, 13, 16, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Rossi et al.

AAPA discloses all the basic limitations of the claimed invention including the light beam position sensing means and the plural optical path deflection means (galvanomirrors), but except for the malfunction sensing means along with the control means, which stops the operation of the faulty light beam generating means while continues to form an image by the operation of the remaining good light beam generating means.

However, Rossi et al. discloses a laser beam printing system having a multiple laser array, wherein if one or more emitters of the laser array should fail, the power of the remaining good emitters is increased to provide a stable light for the formation of the image to be continued (col. 3, lines 3-9).

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of AAPA with the aforementioned teaching of Rossi et al. The motivation for doing so would have been to prevent the operation of the laser printing system from being affected by the failure of one or more emitters.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Rossi et al., as applied to claim 13 above, and further in view of Kinoshita.

AAPA in view of Rossi et al., discloses all the basic limitations of the claimed invention except for the guide display means.

However, Kinoshita discloses an image recording apparatus having a plurality light emitting elements, wherein a failure of one of the light emitting elements, as it goes undetected by the BD photodetecting part, would be displayed as a notification to a user.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the failure notification display as taught by Kinoshita in the modified device of AAPA. The motivation for doing so would have been to alert the user to provide proper maintenance of the printing system.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Horihata et al.

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AAPA discloses all the basic limitations of the claimed invention except for the signal amplification factor setting section.

However, Horihata et al. discloses a laser beam printer wherein the quantity of light of the laser beam is fed back to maintain the light quantity at a constant value, the feedback control circuit including a photodiode as a light quantity detecting means (4), an amplifying means (5) constituted with amplifiers IC1 and IC2 for amplifying the monitoring output of the photodiode, the amplifiers being provided with respective variable resistors VR1 and VR2 for adjusting the gain of the amplifiers, and an integrator IC5.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide an amplification gain adjustment as taught by Horihata et al. in the device of AAPA. The motivation for doing so would have been to enable the feedback control circuit to correctly detect the monitoring current outputted from the photodiode.

15. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Horihata et al., as applied to claim 19 above, and further in view of Kinoshita.

AAPA in view of Horihata et al., discloses all the basic limitations of the claimed invention except for the guide display means.

However, Kinoshita discloses an image recording apparatus having a plurality light emitting elements, wherein a failure of one of the light emitting elements, as it goes

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undetected by the BD photodetecting part, would be displayed as a notification to a user.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include the failure notification display as taught by Kinoshita in the modified device of AAPA. The motivation for doing so would have been to alert the user to provide proper maintenance of the printing system.

***Allowable Subject Matter***

16. Claims 11 and 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. Claims 11 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of the claimed invention, with respect to claims 11 and 18, is the inclusion of the limitation, in the combination as currently claimed, that the light beam scanning apparatus includes a resolution conversion means for, when the malfunction sensing means has sensed that a malfunction has occurred in the light beam generating means, converting the resolution during the image formation according to the number of the remaining good light beam generating means excluding the light beam generating means that has malfunctioned

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such that the image formation is continued with the operation of the remaining good light beam generating means at the resolution converted by the resolution conversion means. The combined limitations are not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM  
PRIMARY EXAMINER

May 12, 2003